COLUMBIA | ENGINEERING
The Fu Foundation School of Engineering and Applied Science

Jianjin Xu

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EDUCATION

Columbia University	New York, NY
Master of Science in Computer Science	*Aug. 2019 – May 2021*
Tsinghua University	Beijing, CN
Bachelor of Engineering in Computer Science	*Aug. 2015 – July 2019*

MANUSCRIPTS

Linear Semantics in Generative Adversarial Networks [[link]]

***Jianjin Xu**, Changxi Zheng*
International Conference on Computer Vision and Pattern Recognition (**CVPR**), **2021**

Frame Difference-Based Temporal Loss for Video Stylization [[link]]

***Jianjin Xu**, Zheyang Xiong, Xiaolin Hu*
Submitted to IEEE Transactions on Pattern Analysis and Machine Intelligence (**TPAMI**).

RESEARCH EXPERIENCE

Linear Semantics in Generative Adversarial Networks Jan. 2020 – Nov. 2020

In Columbia University, supervised by Prof. Changxi Zheng · *Accepted by CVPR2021*
- Proposed the Linear Semantic Extractor (LSE) and proved its sufficiency to extract semantics from GANs. The performance drop of LSE compared to Nonlinear Semantic Extractors (NSEs) is within 3.5%.
- Trained the LSE in few-shot settings and obtained comparable performance compared to fully supervised LSEs.
- Proposed two few-shot applications: semantic-conditional sampling and semantic-precise image editing.

Frame Difference Based Temporal Loss for Video Stylization June 2017 – Nov. 2018

In Tsinghua University, supervised by Prof. Xiaolin Hu · *Submitted to TPAMI*
- Proposed to use frame difference measured on pixel and feature space as a loss to stabilize stylized videos. Compared to the optic flow-based loss baseline, the proposed loss matches the baseline's performance while it is faster and avoids estimating the entire dataset's optic flow.
- Developed an experiment system for evaluation and hosted experiments involving 62 subjects and 25,600 votes.

Neural Painter: a stroke-directed image editing interface Oct 2017 – Apr. 2018

Entry for Tsinghua Challenge Cup supervised by Prof. Xiaolin Hu
- Led a team to build an image editing application capable of editing anime faces guided by simple color strokes.
- Organized the filtering of the anime face dataset, the design of front-end UI, and the development of back-end as the team leader and built the core GAN models as 1st project contributor.

Unrestricted Vehicle Re-Identification System with Deep Metric Learning June 2018 – Oct. 2018

Intership at MSRA, supervised by Lead Researcher Xun Guo
- Developed a re-identification system that inputs raw videos of monitors and identifies re-appeared vehicles. The system first detects vehicles by faster RCNN, then conducts tracking and matching by learned deep metrics.
- Trained the deep metric model on VeRi dataset and validated it on VID dataset and collected traffic videos.

Stable Neural Flow for Latent Space Manipulation Sep. 2020 – Dec. 2020

Intern at CUHK, supervised by Prof. Bolei Zhou
- Proposed to model the relationship between image attributes and latent space using stable neural flow.
- Proposed an evaluation metric for image attribute manipulation.

MISCELLANEOUS EXPERIENCE

Chairman of Tsinghua Microsoft Student Club	6/2018-6/2019
3rd Prize in 36th the Challenge Cup Competition, Tsinghua University	4/2018
2nd Prize in Mathematical Contest in Modeling, 2017	2/2017
Language: pytorch/tensorflow/python/C++/javascript	